T. Hirashima et al. (Eds.) (2011). Proceedings of the 19th International Conference on Computers in Education. Chiang Mai, Thailand: Asia-Pacific Society for Computers in Education

Towards a Matching Strategy of Constructivism and Instructionism

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Abstract: There exists a traditional conflict in teaching between constructivism (learner's perspective) and instructionism (instructor's perspective) because they are mutually exclusive and practitioners will support either one idea or the other. In this paper we attempt to bridge the gap between these two theories via a matching strategy through the intended learning outcomes. We propose that the philosophies of constructivism and instructionism can be used to balance the learner's knowledge and instructor's knowledge in order to provide the suitable learning activities to the learners.

Keywords: Constructivism, instructionism, content knowledge, intended learning outcome

Introduction

Recently, the educational technologies supporting E-Learning have taken the learners into consideration. The constructivist learning has determined as the student-centric approach through which the learner can actively construct new knowledge based upon existing experiences. Therefore, the attitudes toward the traditional learning that provides passive study would be changed, because it might be not appropriate for the learners who have their own knowledge framework while they are studying in the classroom [2]. The instructor should be considered as knowledge provider who still needs to provide essential information and suitable learning contents to the learners with minimal guidance [1, 4].
Theoretically, constructivism is the basis for the modernising of education, which when referring to the educational activities works on the premise that knowledge is constructed in the mind of the learner [3]. On the other hand, many researchers focus on how to conceptualise knowledge and they tend to contribute the mechanism of transferring instructors' knowledge to the learners [9,13]. This paradigm can be initiated by referring to instructionist approach. Instructionism defines a teacher perspective on teacher knowledge which starts from the instructor's understanding and transmission of learning contents to the learners [11, 14]. The content knowledge: the amount and organisation of knowledge in the mind of the teacher [12,14,15], has been determined as the major factor between the instructor and the learners.
We argue that constructivism and instructionism are complementary and can be integrated. The aim of research is to amalgamate these two theories in order to conduct the methodology that balances between learner's and instructor's knowledge. The contribution is to propose the trichotomous framework which can lead the learners to actively construct their knowledge gained from past experiences under minimally guided instruction.

1. Epistemological Orientations

Epistemology refers to as a branch of philosophy that states the origin, nature, methods and limits of human knowledge [10]. Two principal epistemological orientations are objectivism and subjectivism. Objectivism is the major method of learning in institutes, so that instructor is determined as the transmitter of reality while the learners are concerned as passive receptors of knowledge. Subjectivism refers to knowledge as part of the learner and the interpretation of reality are based on personal experiences. The educational application of objectivism and subjectivism are instructionism and constructivism respectively. Figure 1 reveals the hierarchical structure of the epistemological orientations.

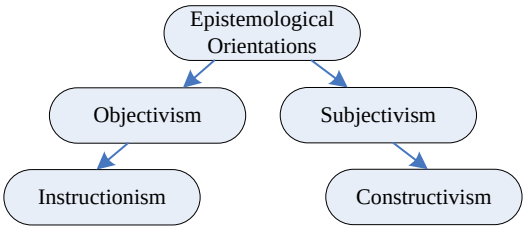

Figure 1 Hierarchical Structure of Epistemological Orientations

Nevertheless, there exists a traditional conflict between objectivism and subjectivism. Because these two terms are mutually exclusive and practitioners will support either one approach or the other [5]. The exclusive perspectives reveal that there are different aspects of the pedagogical goals. Objectivism which focuses on the needs of the instructors describes that the instructor tries to transmit the content knowledge to the learners directly. Whilst, individually, subjectivism expresses the motivational behaviour as the learner tends to construct knowledge based on their experiences. The more content knowledge transfers to the learners, the less the opportunities for the learners to concentrate on the knowledge construction process.

Although the theory of epistemology has stated that there is the distinguishable relationship between objectivism and subjectivism, there has been an interest in the integration of these two approaches. Cronje [5] proposes the use of a *right-angled model* for plotting two approaches as both highly constructivist and objectivist without any inherent contradiction. These two approaches are simply at cross-purposes. If a learning event scores high on one, it does not necessarily score low on the other [6, 7].

2. Research Question

Content knowledge (CK), which is defined in terms of the amount of knowledge in the mind of instructor providing to the learner [12, 14, 15], is sometimes extremely overpowering of learner's experiences. The initial research question is how to appropriately match the content knowledge and learner's knowledge. This deals with the moderate learning practice, so that the learner should perceive the suitable content knowledge based on prior knowledge (and existing experiences). The research aims to analyse these two factors in order to provide the appropriate learning activities to the learner.

3. Proposed Framework

We propose the novel methodology grounded from the trichotomous framework (figure 2) which conceptualises the relationship between three main components: constructivism, instructionism and the learning materials.

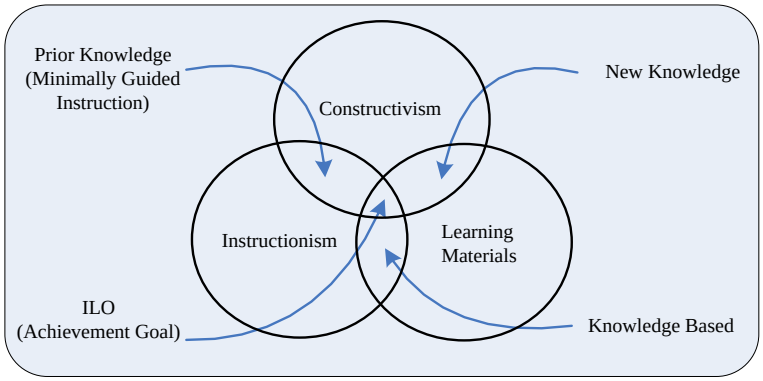

Figure 2 The trichotomous framework

The first pair of the overlapping relationships is instructionism and constructivism which provides prior knowledge in order to accumulate the past experiences based on the minimally guided instruction. The CK has been determined as the instructor's knowledge unit. Mathematically, the concern has been to diminish the amount of the CK as much as possible in order to let the learners form their understanding by themselves. The second pair is the relationship between constructivism and learning materials. New knowledge has determined to represent the novel understanding after providing the suitable learning activities to the learners. Finally, the last pair is the relationship between learning materials and instructionism. Knowledge based is declared to be the repository of knowledge gained while the learners perform the knowledge construction.

The overlapping relationship of all components is the intended learning outcome (ILO) which is determined to represent the planned goals of the study, which address the needs of the learner who is willing to achieve the highest achievement in the learning activities. The framework identifies an outcome-based learning expression of what the learner is expected to be able to obtain at the end of the course program. In addition, the achievement goal has been demonstrated to be the completion of the learning modules. In order to gain the lifelong learning successfully, we hypothesise that the learners who can pursue their study through the course program with enthusiastic activities will be able to earn the highest achievement goals.

3.1 Knowledge exchange model

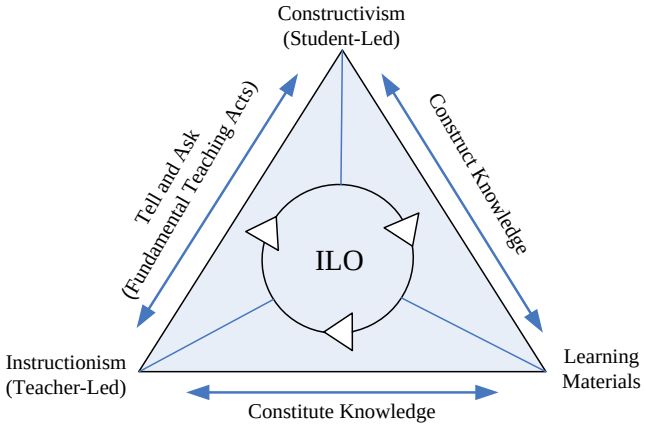

Figure 3 Knowledge exchange model

In order to understand the relationship between the three components of the trichotomous framework, the *knowledge exchange model* is proposed as shown in figure 3. Initially,

starting from the instructionism, the instructor's perspective (the so-called teacher-led) tries to utilise the fundamental teaching acts: tell and ask [8] to transmit and exchange the CK to the learner and constitute knowledge in terms of the learning materials. Secondly, referring to the constructivism (the so-called student-led), the learner constructs new knowledge realised from the CK based on prior experiences, as well as gaining information from the learning materials provided by the instructor. The Personal Experiential Profile (PEP) will be formed to represent the existing learner's knowledge and it would be served as the representative elements of the learner. Finally, the Learning Materials (LMs) play a crucial role as the repository of the model in order to provide the learning contents to the learner.
At the mid-point of the model, circularly, these three components can perform and exchange information and knowledge. The CK and PEP will be symmetrically matched via the ILO construction mechanism and the LMs will be provided to support the educational activities systematically.

3.2 Pedagogical layer of the matching strategy

The pedagogical layer has been defined to conceptualise the hierarchical structure of the relationship between constructivism and instructionism which is based on the pedagogical content knowledge. Figure 4 illustrates the main idea of the matching strategy which can be categorised in four different layers, namely, goal layer, knowledge layer, activity layer and ILO layer.

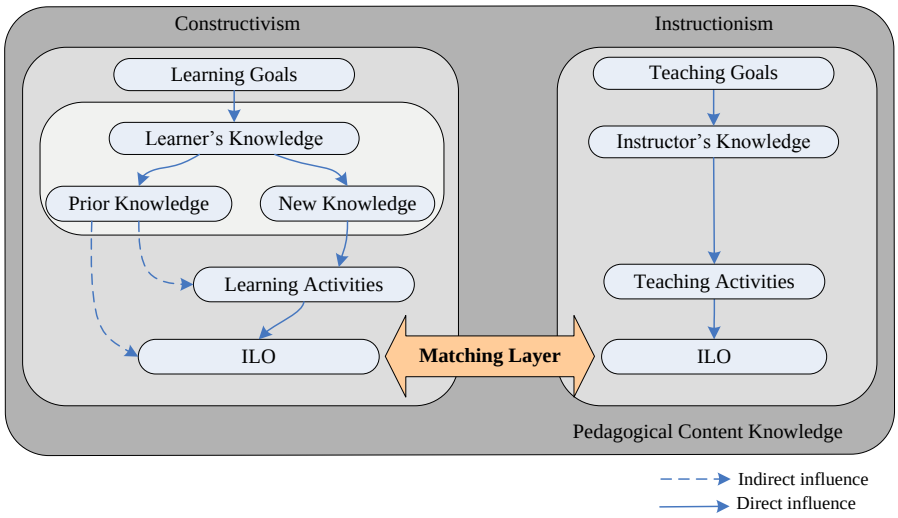

Figure 4 Pedagogical layer of the matching strategy

The core strategy of the proposed approach is the matching process of the ILO, the so-called matching layer, which represents by referring to the *Intended Learning Outcome (ILO).*
ILO has formed in order to represent the aims (or purposes) of the course of study which have been planned before taking the course program. It can be referred to be an indicator of the learning abilities as well as to define the guidance of the learning activities. In addition, it is based on the structure of the specific curriculum of the course of study (pedagogical content knowledge).
In our research, we separate the ILO into two categories: the learner's ILO and the instructor's ILO. Traditionally, the instructor's ILO is usually assigned before starting the course program and it represents the scope of the learning and teaching aims. Whilst the learner's ILO is intentionally defined to represent the student's aims (learning aims) which indicate the intended leaner's knowledge that the learners want to earn during taking the

course program. Practically, the matching layer will be designed to match the learner's ILO and instructor's ILO in order to conduct the suitable learning activities represented as the *pathfinder* which discovers the direction of how student will learn until reaching the achievement goal.

Conclusion and Future Work

In this paper we introduce the concept of the matching strategy of constructivism and instructionism that balances between learner's and instructor's knowledge defined in terms of content knowledge (or CK). The matching layer that defines the core strategy of the proposed idea is introduced. We hypothesise that the proposed framework will lead to the moderate learning practice in which the learner should perceive the suitable learning activities based on existing experiences.

The future work will focus on how to answer the corollaries to the primary research question: effective mechanism for defining content knowledge and capturing learner's knowledge. Moreover, we tend to analyse the differentiated characteristics of the ILO defined in both constructivism and instructionism with the same structure in order to be matched and represented as an equivalent methodology.

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